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proof_mass_coord_offset = 157.238 ; % science proof mass coordinate offset
R_ref=[0 ; 0.06 ; -64.93] % location of base of array
delt=[0 ; 0; 1.41] % offset from base of array to optical center
R_oc=R_ref+delt % optical center of array
R_cg_BOL=[0.003; 0.003; 162.004-proof_mass_coord_offset] % beginning of life cg location
R_cg2oc_BOL=R_oc-R_cg_BOL % vector from cg to optical center @ BOL
R_cg_MOL=[0.003; 0.003; 162.353-proof_mass_coord_offset] % middle of life cg location
R_cg2oc_MOL=R_oc-R_cg_MOL % vector from cg to optical center @ MOL
R_cg_EOL=[0.004; 0.003; 162.743-proof_mass_coord_offset] % End of life cg location
R_cg2oc_EOL=R_oc-R_cg_EOL % vector from cg to optical center @ EOL

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$$R_{\text{ref}} = [0 ; 0.0600 ; -64.9300]$$

$$\text{delt} = [0 ; 0 ; 1.4100]$$

$$R_{\text{oc}} = [0 ; 0.0600 ; -63.5200]$$

$$R_{\text{cg_BOL}} = [0.0030 ; 0.0030 ; 4.7660]$$

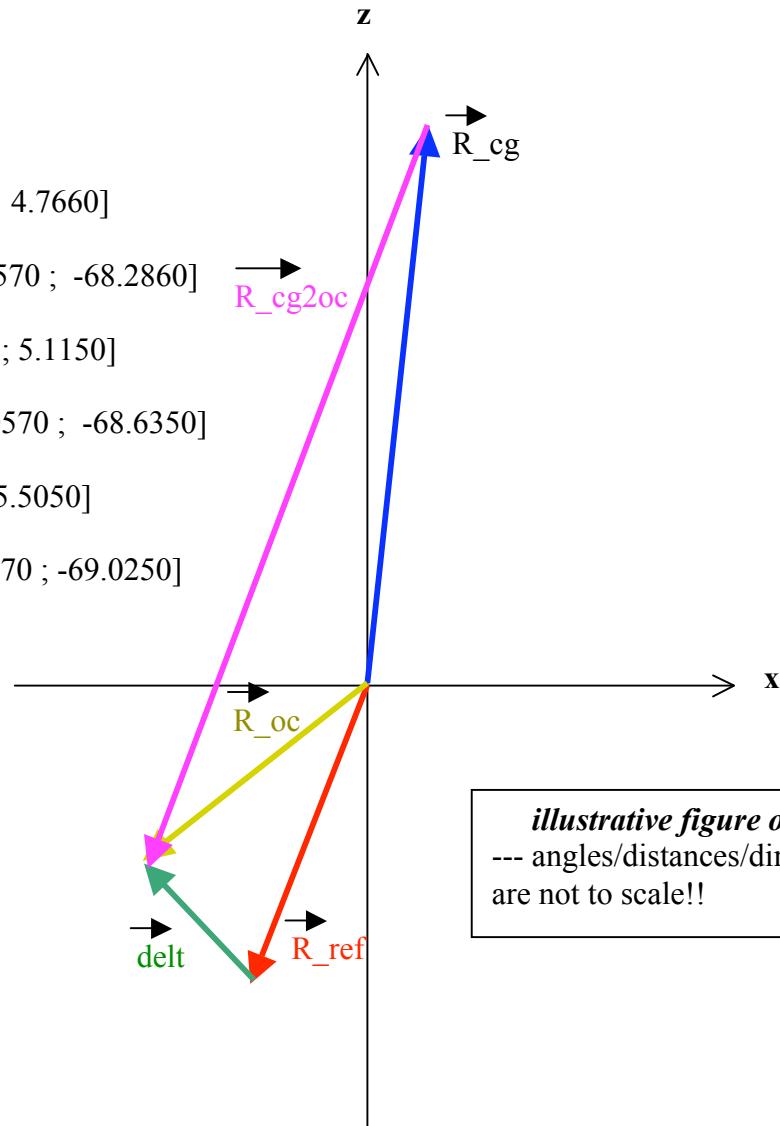
$$R_{\text{cg2oc_BOL}} = [-0.0030 ; 0.0570 ; -68.2860] \quad R_{\text{cg2oc}}$$

$$R_{\text{cg_MOL}} = [0.0030 ; 0.0030 ; 5.1150]$$

$$R_{\text{cg2oc_MOL}} = [-0.0030 ; 0.0570 ; -68.6350]$$

$$R_{\text{cg_EOL}} = [0.0040 ; 0.0030 ; 5.5050]$$

$$R_{\text{cg2oc_EOL}} = [-0.0040 ; 0.0570 ; -69.0250]$$



illustrative figure only
--- angles/distances/directions
are not to scale!!

Where:

$$R_{\text{oc}} = R_{\text{ref}} + \text{delt}$$

$$R_{\text{oc}} = R_{\text{cg}} + R_{\text{cg2oc}} \implies R_{\text{cg2oc}} = R_{\text{oc}} - R_{\text{cg}}$$

==> All distances are in inches

==> Array optical center is assumed to be along s/c z-axis